

volver should be part of the collector's paraphernalia, as the little hydrophobia skunk seems to be particularly partial to entomologists—and his visits are largely nocturnal. Tin boxes should be used in packing specimens, as they not only safeguard the contents from the ravages of ants, but also to a considerable degree are mouldproof. For night collecting, an acetylene lamp is quite indispensable. Sugaring I have found to be highly unproductive.

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### Notes on a few Nymphs of Agrioninae (Order Odonata) of the Hagen Collection.

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(Plate XI.)

Supplemental to the descriptions and figures of nymphs of Calopteryginae that were published in ENTOMOLOGICAL NEWS for March, 1911, I present herewith some descriptive notes and drawings of three nymphs of Agrioninae. The species are from India. The specimens are in the Museum of Comparative Zoology, where I studied them in 1905. Although long in Dr. Hagen's possession they were not described by him. They present some peculiarities of structure that will be of special interest and value when the primary subdivisions of the subfamilies of Zygoptera shall come to be accurately defined.

**Legion Podagrion** s. lat. gen. ? sp. ? (Plate XI, figs. 1-4).

A few poorly preserved specimens of this species bear the M. C. Z. number 334.

A well-grown nymph measures; in length, 28 mm.; gills, 7 mm. additional; abdomen, 21 mm.; hind femur, 5 mm. Width of head, 5 mm.; of abdomen, 3.5 mm.

A smooth and rather slender species with long abdomen and rather short legs. Head widest across the middle of the large, laterally prominent eyes, which cover two-thirds of its side margins. Hind angles low, broadly rounded, subspinulose; between them the hind margin is deeply notched. Ocelli large, close together. Antennae about as long as the head is wide, the length of the several segments from the base outward is as 1 : 1.3 : 2.1 : 1.7 : 1.3 : 1 : .6. Labium elongate slender, the hinge reaching posteriorly to the

metathorax; mentum widened to the bases of the rather short lateral lobes; median lobe somewhat prominent, completely divided by a nearly closed median cleft which descends below the level of the base of the lateral lobes and widens at the bottom to an oval enclosure. Lateral lobe with a long and strong movable hook, and two stout incurved hooks on the end, the outer hook being simple and half as large as the inner. No raptorial setae.

Legs short, longitudinally carinate, the carinae beset with minute prickles. Wings reaching the base of the fourth abdominal segment.

Abdomen cylindric, becoming compressed and slightly narrowed on segments 9 and 10, with a dorsal ridge on 10, slightly excavate at the apical margin. Segments 5-9 are laterally carinate, the carinae spinulose serrate, ending in sharp lateral spines, the one on segment 5 rudimentary. Gills obovate, widest beyond the middle, and abruptly rounded on tip, each jointed on a distinct basal segment that is about as long as high, the middle gill about a tenth shorter than the other two. External genitalia of both sexes remarkably well developed.

The identity of this nymph is not disclosed by the imperfectly preserved venation. Ante and post-nodals are 2:16 and 2:14 in fore and hind wing respectively. The hind margin appears to be "petiolate" from the level of the cross vein opposite the inner end of the subquadrangle, although this is not very clear. The stigma is nearly four times as long as wide, slightly convex both before and behind, strongly braced at its inner end, and there are two cross veins in the space behind it, placed at the first and second thirds of its length. Vein M<sub>2</sub> arises opposite the fourth cross vein beyond the nodus, is widely separated from vein M<sub>1</sub> opposite the outer end of the stigma with four cell rows between (three of them below vein M<sub>1a</sub>) and strongly convergent with vein M<sub>1</sub> to the wing margin. In the apical costal space beyond the stigma there are about ten long simple cross veins in the fore wing, and somewhat fewer, distinctly forking ones in the hind wing. The arculus is in line with the second antenodal cross vein, but inclines outward to meet the inner angle of the rather obliquely placed quadrangle. The latter is trapezoidal, its front margin much shorter than the others, being about half as long as the outer side and hardly more than a third as long as the hinder side. The branches of the cubital vein diverge strongly at their departure from the quadrangle, and then extend parallel.

These details should be sufficient for the determination of the genus at least, if one had before him representatives of the Indian fauna. I know no adult Agrionid with venation

of the sort described. The reference is made to the legion Podagrion of de Selys, because of the existence of two interpolated sectors (one long and one short) between veins  $M_3$  and Rs, with a number of short oblique ones behind the tip of vein  $M_3$ .

*Pseudagrion* sp. ? (supposition), (Plate XI, figs. 5-8).

Nymphs are in the M. C. Z. collection bearing numbers 327 and 355, collected by Rev. M. A. Carleton, in the Himalayas, in 1871.

A well grown nymph measures 19 mm., gills 6 mm. additional; abdomen, 14 mm. Width of head, 3.2 mm.

A rather slender nymph, readily recognized by the extreme angulation of the hind angles of the head, and by the conspicuous joint in the middle of the gills. The head save for the hind angles, is of the ordinary Agrionine form, with ocelli close together upon the middle of the dorsal side. The antennae are apparently but six jointed, the relative lengths of the joints being as 1: .9: 1.1: 1.2: .9: .7. Legs slender. The wing cases reach the middle of the fourth abdominal segment. Vein  $M_2$  arises opposite the fifth cross vein after the nodus in the fore wing, opposite the fourth cross vein in the hind wing. There are no interpolated sectors save  $M_{1a}$  which arises in the hind wing opposite the base of the brace vein to the stigma. The hind side of the stigma is shorter than the cell behind it. The front side of the quadrangle is in the fore wing about equal in length to the inner end, but much longer in the hind wing. The gills are divergent basally, distinctly divided into two segments by an oblique suture at the middle of their length, and thereafter parallel to their rather obtuse tips. In a wide transparent marginal area there are small pigmentation figures of more or less dendritic form, and the denser more opaque median band is traversed by long and nearly parallel tracheal branches, which gradually diverge to the margins.

*Aciagrion* sp. ? (supposition), (Plate XI, figs. 9, 10).

Nymphs of this species in the Museum of Comparative Zoology bear the numbers 395 ("Swamp, E. Jumma, India. Old Holy Tank"), and 324 ("Ibania, East India. Old Holy Tank"). They are interesting as showing a minimum development of the median cleft of the labium.

A well grown specimen measures: in length, 12.5 mm., gills 3.5 mm. additional; abdomen, 7.5 mm.; hind femur, 3 mm. Width of head, 3 mm., of abdomen 2 mm.

A not very slender nymph with short gills. Head rather deeply

